

Previous references.

File No. 277-1C

190-11 ✓

Serial Nos. 1-21

(Gen. Mis.)

Later references.

GENERAL AND REVENUE SECRETARIAT.

Serial Nos. 1-21

Part B. for August 1911.

SUBJECT.

Invention of Messrs. W. S. Simpson Howard Oriatt for 'Improvements in the direct production of iron and steel from the ore.'

1. From Mr. Henry Vincent Williams, Patent Agent, C/o Thomas Murrell Bangalore. No 1754 -C of 8-5-11.

Forwards the application of Messrs. Simpson & Oriatt for leave to file a specification of their invention together with a power of Attorney & a sum of Rs. 10/-

2. To the Deputy Commr. Treasury Dept, Bangalore. No. G. 6851 of 23-5-11.

Forwards Rs. 10/- being the application fee in respect of the invention referred to above and request acknowledgment.

3. To the Stamp Dept No. G. 6852 of 23-5-11.

G. R. S. 58 Forwards Re-1/- and the power of attorney received with Re-1 and requests that the latter may be impressed with a general stamp of Re-1/- and returned to this office.

4. To the State Geologist No. 4. 6853 & 23.5.11.
Forwards for report the application received with serial 1. ~~and requests that the letter may be impressed with a general stamp of the value of Rs~~
5. To M.H.V. Williams Esq, Bangalore. No. 4. 6854 & 23⁵/₁₁
~~Forwards for Report the appⁿ received with serial 1~~
Acknowledges receipt of the application forwarded with sl. 1 & makes certain enquiries
6. From the Supt of Stamps. No. 193 & 25.5.11
Returns the power of attorney duly stamped
7. From the Treasury Office, Bangalore. $\frac{392}{39}$ & —
Acknowledges receipt of Rs. 10/- sent with serial. 2.
8. To the Supt of Stamps No. 4. 7062 & 16.11
Acknowledges receipt of the Power of Attorney duly stamped, forwarded with sl. 6.
9. From the State Geologist No. 2458 & 8.6.11
With reference to sl. 4 forwards copy of Chief Inspector's Report recommending the grant of leave &c
10. From M. H. V. Williams - Letter & 23.6.11
With reference to sl. 5 forwards a copy of the order of the Govt of India granting leave to file the specification.
11. To Messrs. Wm Spies Simpson & Howard Orinall
Chief Engineers, London No. 4. 262 & 12⁷/₁₁
Authorizes them to file the specification.
12. To H.V. Williams Esq No. 4. 263 & 12.7.11
Forwards copy of the above for Communication to the party concerned.

G.R.S.11]

1940 . 11

GENERAL AND REVENUE SECRETARIAT

(Sent. mis.)

Reg. no 8 of 1940 . 11

NOTES.

File No. 277

FILE HEADING.

Invention of messrs W. S. Simpson and Howard Coriath
for "Improvements in the direct production of iron and
steel from the ore."

From

M^r. Henry Vincent Williams, Patent Agent of Thomas Munnell
Bangalore.

No. 1754 - C

Dated 8.5.11

Received 15.5.11

Diary No. 4845 }

Enclos. 2.

Spare Copies {

Serial No. 1.

BRIEF ABSTRACT OF LETTER.

Forward the applⁿ for of messrs Simpson & Coriath for
leave to file a specification of their invention together with a
~~sum of Rs~~ ^{sum of Rs} 1000/- as attorney's fee.

NOTES AND ORDERS.

Subd. with the usual draft.

VS (125) km
17-5-11



Issued
17-5-11

Serial
No.

2 To the D. C. Dy. Deptt, Bangalore. No. C. 6851 D. 23.5.11.

Forwards Rs 10/- being the appln fee in respect of the invention refd to in the above & request for

3 To the Stamp Supdt. No. C. 6852 D. 23.5.11.

Forwards the ^{Rs 1/- and} Power of Attorney recd with St 1 and requests that the latter may be impressed with a general Stamp of the value of Rs 1 and returned to this office.

4 To the State Geologist. No. C. 6853 D. 23.5.11

Forwards for report the appln recd with St 1

5 To H. V. Williams Esq., Bangalore. No. C. 6854 D. 23.5.11.

Acknowledges the receipt of the appln forwarded with St 1, and requests to be furnished with a copy of the Govt of India Order, if any, passed on a similar appln made there enquires whether the appln made to the Govt of India has been granted & requests that a copy of the order obtained in the United Kingdom may be forwarded.

6 From the Supdt of stamps. no. 193 of 25.5.11

Return the power of attorney duly stamped.

7 From the Dy. Officer, Bangalore. 392 of 29.5.11

Acknowledges the receipt of the sum of Rs 10/- sent with St 2.

(3) Draft ack to N. 6 subd. [The Dy. receipt is not stamped.]

I don't understand this. It is a mistake.

19.5.11

(4) Appd. 19.5.11

(4a)

This is a material omission. I think we ought to return it & get it rectified.

29.5.11

12/6/11

Attended to 13.6.11

Serial
No.

8 To the Supdt of Stamps. No G 7062 D. 1. 6. 11

Acknowledges the receipt of the power of attorney duly stamped forwarded with St 6.

9 From the State Geologist No 2458 of 8 6 1911
With ref^{ce} to St 4. forward copy of Chief Inspector's Report of 29. 5. 1911 recommending the grant of leave but observing that he cannot say whether it would also give them exclusive privileges as desired.

H. P.

(5) Section 8 of the Reglⁿ. perhaps clears the
Offg. Chief Inspector's doubt. But reply to
St 5 may be awaited for the grant of leave here

15 (125) bus.
12.6.11

(6) - yes.

102
12/6/11

10 From ~~the~~ H. V. Williams Esq., Esq., 19, 23-11-1911
With ref^{ce} to St 5 forwards a certified copy of the
order of Govt of India granting leave to file the
Specification.

Drafts sent for appl^l or other orders.

15 (125)
29.6.11 bus.

Done
1.7.11

11 To Messrs Wm Speers Simpson & Howard Orisk, Civil Engineers,
165, Victoria St, London. No G 262 D. 12. 7. 11

Authorizes them to file a specifiⁿ.

12 To H. V. Williams Esq. No G 263 D. 12. 7. 11.

Forwards copy of the above for com^{rs} to the parties concerned.

325

Serial
No.

13

From Messrs H. Williams & Thomas Munnell. no 1124-
of 21.7.1911. Files for copies of the specification with the
prescribed fee of Rs 30/-

7 S & 8 S. 1 paper under
defined.

The usual 4 S. 1. m. f. appl. The certificate
at the bottom of the S. 1. and fair of the order (S. 11)
requires signature.

13
24.7.11

Done
Rm.
25.7.11

14 To the Compiler, Mysore Gazette. no C. 694 of 29. 7. 11

Notifies the filing of the specification.

15 To Henry Vincent Williams Esq, Cleveland Inn, Bangalore
no C. 695 of 29. 7. 11.

Forwards copy of the above & returns S. 11 duly
certified.

16 To D.C., P. & S. Dept., Bangalore. no C. 696 of 29. 7. 11.

Forwards Rs 30/- recd with S. 13 & requests ackh.

17 To the State Geologist, Chief Engineer & Supdt, Govt Museum.
no C. 697-9 of 29. 7. 11.

Forwards a copy of the spec. for info & record.

18 From the Jry Office, Bangalore. no 31-23 of 31.7.1911. Acknow.
ledges receipt of Rs 30/- forwarded with S. 16.

19 From the Supdt Govt Museum no 26 of 2.8.11

20 State Geologist no 2388 of 2.8.11

21 Chief Engineer no 7039 of 5.8.11

Acknowledge
receipt of specification
forwarded with S. 17.

The papers may be recorded.

13 (125) 12.8.11

yes
Rm.
12.8.11

No.1754-C

①
4845
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G. M. 277-10-1

From

Henry Vincent Williams,

Patent Agent,

C/O Thomas Murrell Esq.,

Cleveland Town,

BANGALORE.

To.

The Secretary to the Government of Mysore,

General and Revenue Departments,

BANGALORE.

Dated, the 8th May 1911.

I have the honour to hand you herewith an Application dated the 13th day of April 1911 from Messrs. WILLIAM SPEIRS SIMPSON and HOWARD OVIATT for leave to file a Specification under Part I of The Inventions and Designs Regulation No. XI of 1894 in respect of their invention for "Improvements in the direct production of iron and steel from the ore".

I also enclose a Power of Attorney executed in my favour by the Applicants, and remit herewith the prescribed application fee of Rs.10/-

I have the honour to be,

Sir,

Your most obedient servant,

Enclosures:
1. Application.
2. Power of Attorney.

H. V. Williams

H.V. WILLIAMS & CO

Patent Agents.

TELEGRAPHIC ADDRESS
"LOFZANG CALCUTTA"

A. B. C. CODE. 5TH EDITION.
B. SINGER'S PATENTS CODE.

Registered.
3 Enclosures.

No. 1754-C

14, Hare Street. (2)
CALCUTTA.

8th May 1911.

Thomas Murrell Esq: ,
Cleveland Town,
BANGALORE.

Mr.
Dear Murrell,

Enclosed herewith I have pleasure in sending you a Power of Attorney, Application and a covering letter to the Secretary to Government, relating to an application by Messrs Simpson & Oviatt for leave to file a Specification of their invention for "Improvements in the direct production of iron and steel from the ore". There are no drawings in this case.

By Postal Money Order I am also remitting Rs. 11/- as usual to cover the cost of the stamp on the Power of Attorney, and the application fee.

Kindly file the papers as early as convenient, and let ^{me} ~~us~~ know the date of actual filing.

Trusting you are keeping fit and well, and with kind regards.

I am,

Yours sincerely,

H. V. Williams & Co.

4895
187.4

money & cons sent

179
25/5/11

HKS

G.R.S. 29A]

19 . (3)

From

Secy. to the Govt. of His Highness
The Maharaja of Mysore,
Genl. and Rev. Dept.

To

The Dy. Commr.
Mys. Dept.

Dated

Despatched 23.5.11 Bangalore

Received

General No. C 6857

for No. 277-10-2

Enclosure No. Rs 10/- only -

Has the honor to forward
herewith for credit a sum
of Rs 10 being the applⁿ fee
in respect of an invention
for "Improvements in the
direct production of iron
& steel from the ore" by
Messrs. W. S. Simpson & H. G. G. G.
of England. & to request the
favor of an acknowledgment.

180.
17.5.11
26/5/11
HKS

GPB-20,000-21-10-10.

HKS

4845
1875/11

money has been sent

25/5/11

ce 15
G.R.S. 29A]

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From

Secy. to the Govt. of His Highness
The Maharaja of Mysore,
Genl. and Rev. Dept.

To

The Supt of Stamps.

Dated

Despatched 23. 5. 11

Received

General No. C 6852

Gen No. 277-10-3

Enclosure No. 1 and Ref/-

It has been ~~to forward~~
request that the accompanying
Power of Attorney constituting
Mr H. V. Williams, Patent Agent
as the agent of Messrs
W. S. Simpson & H. G. Vialt. of
London may be sta
impressed with a general
stamp of Rs 1 in value &
returned to this office. A
sum of Rs 1 is herewith forwarded

B. C.

GPB-20,000-21-10-10.

17.5.11
200 Hq. Secy
bus

4845

G.R.S. 29A]

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From

Secy. to the Govt. of His Highness
The Maharaja of Mysore,
Genl. and Rev. Dept.

To

The State Geologist

Dated

Despatched 22. 5-11

Received

General No. 66853

for No. 277-10-4

Enclosure No. 1

Sir,

I am directed to
forward herewith for
favor of enquiry and
report under Part I of the
Mysore Inventions & Designs
Regulation No. 10 of 1854 the
applⁿ of Messrs W. S. Simpson
& H. G. Vialt of London for leave
to file a specification of their
invention for "Improvements

Do be kindly returned.

in the direct production of
iron and steel from the
one."

Shaw & Co.

for 17.5.11
Dr Collyer

Shaw

AS

G.R.S. 29A]

19 .

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*4823-
1975/11*

From

Secy. to the Govt. of His Highness
The Maharaja of Mysore,
Genl. and Rev. Dept.

To

H. W. Williams Esq.

C/o Thomas, Munell Esq.
Dated *Cleveland Tenn*

Despatched 23. 5. 11

Received

Dangalore

General No. *C. 6854*

Gen No. 277-10-5

Enclosure No.

Sir,

I am directed to
acknowledge
~~request~~ the receipt of the
applⁿ. of Messrs W. S. Simpson
and H. Gviatt, Inventors,
London for leave to file a
Specification of their invention
for "Improvements in the direct
production of iron & steel from
the ore" forwarded with
your letter no. 1754 - C. of 8.5.11
and to request to be furnished

in the course
with information as to whether
the applⁿ said to have been made
has been granted.
to the Gov: of Ind-^a. A copy of the
order ^{issued} ~~granted~~ in the United Kingdom
may also be kindly forwarded.

Thorne &
~~12~~
17-5-11
Director Secy

Mr.

~~12~~
17-5-11

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✓
26/5/11

No: 193

Office of the Superintendent of Stamps
in Mysore
Bangalore

Enc: one stamped Pa

Q. 277 to 6

Rs 4999

Dated 25th May 1911

From

N. Krishnaswami Rao Esq. B.A.

Superintendent of Stamps
in Mysore.

To C. S. Balasubramanian Esq. Esq. B.A.
Offs. Secretary to the Government
of Mysore General & Revenue
Department.

Sir

With reference to your docket
No G. 6852 dated the 23rd Instant,
Q. 277-10-3

I have the honor to return herewith
duly Stamped, the Power of attorney
received with the above, and to request
the favor of an acknowledgment.

I have the honor to be
Sir

Your most obedient Servant.
N. Krishnaswami Rao

W. fur

Superintendent of Stamps
in Mysore.

W. fur

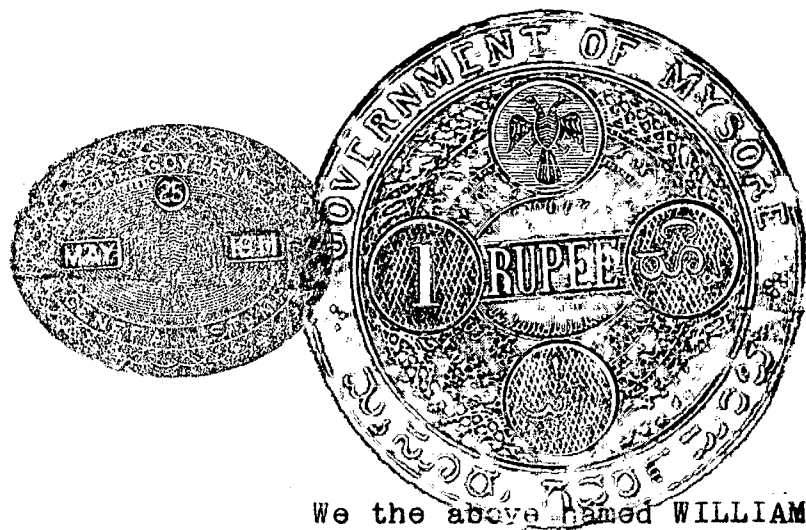
Mysore No. One

Stamp 1 Rupee.



POWER OF ATTORNEY

(10)



In the Matter of the Inventions
and Designs Regulation XI of 1894
of the Government of Mysore:

and

In the Matter of William Speirs
Simpson and Howard Oviatt, both
of 165, Victoria Street, London,
England, Inventors.

We the above named WILLIAM SPEIRS SIMPSON, and HOWARD OVIATT,
both of 165, Victoria Street, London, do hereby retain, consti-
tute and appoint Henry Vincent Williams, Patent Agent, in the
care of Thomas Murrell, Esquire, Cleveland Town, Bangalore,
as our Agent and Attorney to apply for and obtain from the
Government of Mysore an Exclusive Privilege for Improvements
in the direct production of iron and steel from the ore and to
maintain the same in force; and we authorise him _____
to sign our name to such papers and writings and do such acts
regarding the same, including substitution and revocation, as
may be necessary or expedient. And lastly we request that all
notices, requisitions and communications now or hereafter
relating to the same may be sent to such Agent at the above
address, and that he _____ be recognised as my
authorised Agent in all proceedings incident thereto.

Dated this 13th day of April 1911.

William Speirs Simpson

Signed, sealed and delivered

by the above named William Speirs
Simpson & Howard Oviatt at London

Howard Oviatt

England in the presence of

H. Core Gardner
Lynwood Gardner

both of 143, 144, 145 Fleet Street London E.C.

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Qm. 277-10-2 (11)

US m 25/5

\$ 5017
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P. 10-00.

Book No. 1012

392
No. 39

TREASURY dated 25 May 1944

Received from Gen. Off. Secretary to Govt.
General & Rev. Departments

Purpose: Ten only

Annas — and Pies — being on account of

Application fee in respect of an
invention. V. his M. E. 6851 / Qm 277-10-2
dated 23 May 1944

M. H. Jansen & Co.

In charge of Treasury.

Bangalore note.

This seems to belong to Branch V.

M.S.
26.5.11.

Noted & returned

M.H.
26/5/11

X 2/

5817
32/5

X G.R.S. 29A]

190 . (12)

From

Secy. to the Govt. of His Highness
the Maharaja of Mysore,
Genl. and Rev. Dept.

To

The Supdt of Stamp

Dated

Despatched 1- 6. 11

Received

General No. 7062
Sm No. 277-10-8
Enclosure No

Has the honor to
acknowledge the receipt
of the Power of Attorney
returned duly stamped
with his letter no 193 of 25.5.11

OSV.
19.5.11
2 Cols Secy

has.

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M.G.D. 13]

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MYSORE GEOLOGICAL DEPARTMENT.

Dated Bangalore, 8th June 1911

V
1911
No. 2458

Encls. two.

From

G.M. 277-10-9

E. W. WETHERELL, Esq., A.R.C.S., F.R.P.S.L., F.G.S.,

Offg. State Geologist in Mysore.

To

C.S. Balasundaram Iyer, Esquire, B.A.,

Offg. Secretary to the Government of His Highness
the Maharaja of Mysore, Genl. and Rev. Depts.

SIR,

In reply to your letter No. G.6853/G.M.277-10-4, dated 23rd May 1911, forwarding for enquiry and report the application from Messrs. W.S. Simpson & H.Oviatt of London for leave to file a specification of their invention for "Improvements in the direct production of iron and steel from the ore", I have the honour to forward herewith a copy of report, dated 29th May 1911, received from the Offg. Chief Inspector of Mines ^{in Mysore} on the subject.

2. The specification is herewith returned.

I have the honour to be,

Sir,

Your most obedient servant,

H. W. Wetherell

H. W. Wetherell
Offg. State Geologist in Mysore.
jr

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Report.

This application deals in a clear and straight forward manner with what is claimed to be an improved method of producing direct from the ore (1) iron and (2) steel.

The process adopted is not in any way a complicated one and if "both the iron and steel produced are of exceptional purity", it is obvious that the industry would greatly benefit thereby, granted that the cost of production is not excessive, and there appears to be no reason why it should be,

In view of the fact that Letters Patent have been granted in the United Kingdom to the applicants and that they have also filed an application for an exclusive privilege in British India, their application for leave to file the specification may be granted under Part I of the Mysore Inventions and Designs Regulation XI of 1894. Whether this would also give them an exclusive privilege under the abovementioned Regulation in this State, which is apparently desired by the applicants, I am unable to definitely assert.

Signed/ R.Bocquet,

Offg. Chief Inspector of Mines

in Mysore.

29.5.1911.

Copy.

H. Inbooran

H Offg. State Geologist in Mysore.

8th June 1911.

Dist No 56



A P P L I C A T I O N .

Reg. No 8 of 1910-11

To

THE DEWAN of MYSORE.

The application of WILLIAM SPEIRS
SIMPSON and HOWARD OVIATT, Civil
Engineers, both of 165, Victoria Street,
London, ENGLAND, for leave to file
a Specification under Part I of The
Inventions and Designs Regulation, 1894.

1. We, the applicants WILLIAM SPEIRS SIMPSON, and HOWARD OVIATT, have obtained Letters Patent in the United Kingdom No.9163 dated and sealed as of the 17th April 1909, and actually sealed on the 6th day of October 1910, and have filed an application for an Exclusive Privilege in British India No.239 of 1911 as advertised in the Gazette of India dated the 6th day of May 1911, for Improvements in the direct production of iron and steel from the ore.

2. To the best of the information and belief of the applicants the invention is new within the meaning of Part I of the Mysore Inventions and Designs Regulation 1894; and no circumstance exists which, if the applicants be ~~authoris~~ authorised to file a Specification and file it in accordance with that Part, will disentitle them to an Exclusive Privilege thereunder in respect of the invention.

3. The following is a description of the invention:-

This invention has for its object the production of refined iron from various ores in which iron occurs as an oxide, or the production of steel directly from such ores. The method or process is adaptable to any form of iron oxide capable of being crushed or ground for mixing purposes as hereinafter set forth and is peculiarly adapted to the economical treatment of concentrates consisting of iron oxides or of ores already existing in a state of fine division as natural products, such as magnetic iron sands, whether titaniferous or otherwise.

In carrying out the invention we prepare an ore-charge by thoroughly mixing the iron oxide ore, which if not already in a comparatively fine state of division has (preferably) been ground or pulverized, with a suitable quantity of a chloride capable in the presence of iron oxides and silica, (SiO_2) of forming a silicate; such as the Chlorides of Sodium, Potassium, Calcium or Strontium, in a ground state. The quantity required of such chloride varies according to the particular chloride employed and the character of the ore under treatment. Usually the chloride of sodium (common salt) is the more convenient and economical and the quantity required per ton of ore varies from 10% to 25% of the weight thereof; ores containing a high percentage of phosphorus or sulphur require more of the chloride than ores less impregnated with such impurities. Such ore-charge should also be provided (if not already existing in adequate proportions in the ore) with a suitable quantity of Silica (SiO_2) or equivalent

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Silicious material, and with an adequate quantity of one or more of certain basic fluxing materials such as Lime (CaO) or Magnesia (MgO) and in some cases Alumina (Al_2O_3) in a ground state.

In order to form a readily fusible slag the ore-charge should contain a sufficient quantity of such basic materials to equal about one and one half times the weight of the Silica (SiO_2) present. And the quantity of Silica in such ore-charge, whether originally existing in the ore or whether added thereto for the purposes of this process, should approximately equal 60% of the weight of the Sodium Chloride employed. Since it is not necessary that the total silica present in the ore-charge should exceed 60% of the weight of the Sodium Chloride, in treating ores already containing silica in appreciable quantities there is added only sufficient silica or silicious material to supply any deficiency in the proportions above mentioned.

The oxides of iron when subjected to adequate heat, out of the air, in the presence of Silica and a suitable chloride (as for example Sodium Chloride) may be reduced to metal without the employment of carbonaceous reducing agents of any kind. We apprehend that under suitable thermal conditions and in the presence of the oxides of iron and a silicious material the constituents of the above mentioned chlorides are dissociated with the simultaneous production of metallic iron. Thus with Sodium Chloride the Silicate of Soda is formed and the synthesis of a silicate seems to be an essential factor in the process of reducing the iron oxide to metal. Also the liberation of nascent

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chlorine facilitates the elimination of impurities such as Sulphur and Phosphorus.

In treating titaniferous ores, we add manganese dioxide, in the form of manganese ore or otherwise, to the ore-charge and thoroughly mix the same therewith. The quantity of such dioxide varies from two to six per cent. or upwards of the weight of the ore-charge, according to the general character of the ore and its titanium contents.

When steel instead of iron is to be produced directly from any iron oxide ore we may add to the ore-charge, in addition to the Sodium Chloride, Silica and basic fluxes hitherto mentioned (including from two to six per cent. by weight of manganese dioxide) a suitable quantity of a carburizing material either in finely divided form and intimately mixed with the ore-charge or in a less finely divided form and charged into the hearth before placing the ore-charge therein; or carbonaceous material may be brought into contact with the molten metal in the ladle or in any other convenient manner. Such carburizing material may consist of graphite (plumbago) or other suitable carbon such as a pure form of ground coke or anthracite coal and may be so employed as to uniformly carburize the molten metal to any desirable extent. The quantity of carbon required for this purpose may vary from one per cent. to three per cent. (or upwards) of the weight of the ore-charge; depending upon the character of the steel to be produced and upon the character of the carbon so employed.

The ore-charge having been prepared in the manner herein-before described and thoroughly dried from moisture may be placed in a suitable retort, receptacle or furnace hearth having a suitable refractory and slag-resisting lining and then subjected to heat, as far as possible out of contact with air, in any convenient manner or in any convenient form of furnace wherein it is practicable to create and maintain high temperatures, such as a heat equal to or somewhat higher than the melting point of pure iron or steel, approximately 3000°F or upwards. We prefer to subject the prepared ore-charge to the requisite heat in the open hearth of a Steel-making furnace such as Siemens' regenerative furnace fired by gas.

When employing an open hearth furnace, at high temperatures the surface of the ore-charge should be protected as far as possible from contact with atmospheric air and from the oxidizing influence of the flames of the furnace until such surface is covered by the molten slag resulting from the operation, by the use of a small quantity of a suitable form of carbon as hereinafter mentioned. The chief objects of the process are impaired or frustrated unless the contents of the ore-charge under treatment are adequately protected from oxidation. Otherwise much of the reduced metal whilst still in the form of spongy or unmelted iron, becomes re-oxidized at a stage of the process when the reducing conditions or agencies have ceased to be effective. A convenient and efficient method of protecting the ore-charge on the open furnace hearth until the necessary slag covering is

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formed, consists in spreading over it a thin layer of carbonaceous material such as ground coke or small coal, preferably anthracite, which prevents the re-oxidation of the metal during the operation. A similar result may be obtained by means of a small jet of gas taken from the generator of the furnace and so delivered through a suitable pipe upon the surface of the ore-charge that the oxidation thereof from any cause is prevented. For the reasons stated it is obvious that ordinary air-blast smelting furnaces of all descriptions are unsuitable for this process.

The time required for the direct production of iron or the production of steel directly from the ore, by means of a Siemens' open hearth furnace as hereinbefore specified, varies from three to six hours; depending upon the magnitude and composition of the charge, the lining of the hearth and somewhat upon the character of the iron oxide under treatment.

If an open hearth furnace be employed in which the heat is generated above the ore-charge and applied only upon the upper surface thereof, the time required for reduction may be materially shortened by stirring up (rabbling) the ore-charge frequently (after the first hour) in order to facilitate the passing of the heat through the mass of ore, but in such a case either a small quantity of carbon should be thrown upon the surface after each stirring up of the ore-charge to prevent re-oxidation of the metal already formed, or a small quantity (rarely exceeding 10% of the weight of the ore) of coal dust, preferably anthracite,

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may be mixed with the ore before charging into the hearth of the furnace, the presence of which will protect the metal from re-oxidation however much it may be rabbled or stirred up.

Thus by our process if refined iron for wrought iron bar is required the iron is withdrawn from the furnace as soon as fully reduced to metal and before it is near enough to the molten stage to become carburized and it is at once placed under the hammer. But if steel is required the metal is allowed to remain in the furnace until melted and carburized. Both the iron and the steel produced by this process are of exceptional purity.

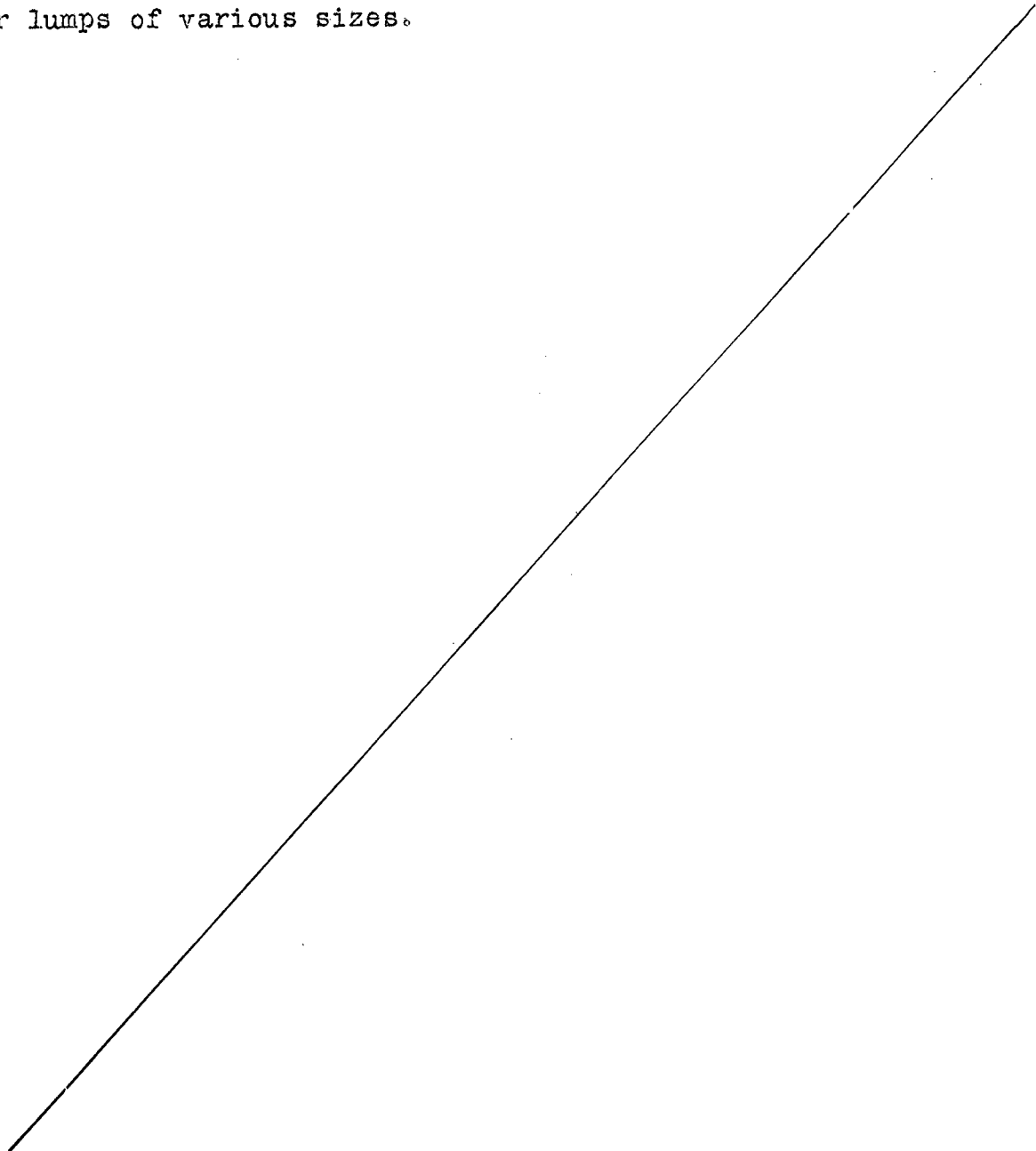
It is important that the furnace hearth should be made of or lined with a refractory material suitable for resisting the action of erosive slags. In most cases a chromite hearth or lining is efficient.

The entire ore-charge should be dried and all moisture eliminated before it is placed in the furnace and in treating ores containing a high percentage of phosphorus or sulphur it is desirable after charging into the furnace to first subject the ore-charge to a moderate heat of about 1500°F for the space of about one hour and afterwards to apply the maximum heat to complete the operation.

Although it is usually desirable that the ores to be treated should be in a fine state of division and although the best and most economical results are obtained when all substances contained in the ore-charge have been finely ground and brought into inti-



mate contact each with the other before being subjected to heat, the application of this process may not be entirely limited thereto; but an ore-charge may be prepared in the manner hereinbefore indicated wherein a portion only of the substances composing the charge have been finely ground, such as ores and other substances partly fine and partly coarse or which may not have been screened after crushing, so that some portions thereof may be as fine as sand and other portions may contain coarser grains or lumps of various sizes.



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(13)

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed We declare that what We claim is:-

(1) The herein described method or process of producing refined iron or steel from ores containing the oxides of iron, which involves the preparation of an ore-charge the constituents whereof shall be in a comparatively fine state of division and intimately mixed with each other. Such ore-charge containing, (a) the iron ore, (b) suitable quantities of a chloride such as the Chloride of Sodium or its equivalent, (c) a predetermined quantity of Silica or equivalent silicious material, (d) sufficient Lime (CaO) or equivalent basic material of a character to form a liquid slag when fused with the other constituents of the ore-charge, (e) a suitable quantity of manganese ore or its equivalent of manganese dioxide (especially if the iron ore is titaniferous) (f) a small quantity of suitable carbonaceous material either mixed with or placed on top of the charge to prevent the re-oxidation of the spongy iron after its reduction to metal, and (in case of steel manufacture) sufficient to carburize the metal when it reaches a molten condition; and subjecting the charge thus prepared and whilst substantially out of contact with air, to a high degree of heat, equal to or greater than the melting point of pure iron, for a period of time and under conditions efficient to accomplish the desired result; in the manner substantially as hereinbefore set forth.

24

(2) The herein described improvement in the art of producing refined iron or steel directly from iron oxides, which is characterized by subjecting such ore to a high degree of heat, out of contact with air as far as possible, and in the presence of a suitable chloride such as Sodium Chloride or its equivalent, Silica (SiO_2), and a basic fluxing material; substantially as hereinbefore set forth.

(3) The herein described improvement in the art of producing refined iron or steel from titaniferous iron ores wherein the ore in a comparatively fine state of division is mixed with a predetermined quantity of manganese dioxide (or equivalent manganese ore) a suitable chloride, silica, and lime or an equivalent basic material; the mixture being subjected to adequate heat without free access of air, substantially as hereinbefore described.

4. The applicants, therefore, apply for leave to file a Specification of the invention pursuant to The Mysore Inventions and Designs Regulation 1894.

Dated this 13th day of April 1911.

William Lewis Simpson

Howard Orick

No. 1754-C

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(25)

FROM

H. V. WILLIAMS Esq.,

C/O THOMAS MURRELL, Esq.,

Cleveland Town,

G.M. 277-10-10

B A N G A L O R E.

TO

THE SECRETARY to the GOVERNMENT of H.H. the MAHARAJAH of MYSORE,
General and Revenue Departments,

B A N G A L O R E.

Dated, June 23rd, 1911.

Sir,

I have the honour to acknowledge the receipt of your letter
No. G.6854 of the 23rd ultimo and, as requested, to forward
G.M. 277-10-5
herewith a certified copy of the order obtained from the Government
of India granting leave to file the Specification of Messrs.
W. S. SIMPSON and H. OVIATT'S invention for "Improvements in the
direct production of iron and steel from the ore".

I have the honour to be,

Sir,

1 Enclosure.

Your most obedient Servant,

H. V. Williams

No.

(26)

GOVERNMENT OF INDIA.

Department of Commerce and Industry.

Register No. 239

of ~~190~~ 1911.

Calcutta, the 7th June ~~190~~ 1911.

WHEREAS an application, ~~dated the~~ ^{above} numbered as ~~XXXX~~ and received on the 1st May 1911, has been submitted under section 5 of the Inventions and Designs Act, 1888, by William Speirs Simpson and Howard Oviatt, civil engineers, both of 165 Victoria street, London, England,

(hereinafter referred to as "the applicant") for leave to file a specification of an invention for improvements in the direct production of iron and steel from the ore;

And whereas the applicant has duly complied with all the requirements of section 5 of the said Act;

The Governor-General in Council is pleased, under section 6 of the said Act, to authorize the applicant to file a specification of the said invention in accordance with the provisions of the said Act.

ORDERED, that the applicant be, and he is hereby, informed accordingly.
By order of the Governor-General in Council,

Sd/- H. G. Graves

Assistant Secretary to the Government of India.

No.

Dated the _____ 190

Certified that the fees prescribed in the fourth schedule to the Inventions and Designs Act, 1888, in respect of the application for leave to file the said specification and of the filing thereof have been paid by the applicant, and that the specification hereinbefore described has been duly filed in accordance with the provisions of section 8* of the said Act on this the eighth day of June ~~190~~ 1911.

Sd/- H. G. Graves

Assistant Secretary to the Government of India.

(True Copy)

Dept. of C. & I. Patents Regr. No. 24.

* See reverse.

H. Bonnard
Superintendent, Patent Office.
20/6.

Section 8 of the Inventions and Designs Act, 1888.

8. (1) If within six months from the date of an order under section 6, sub-section (1), or within such further time, not exceeding three months, as the Governor-General in Council, in his discretion, may, on cause shown to his satisfaction and on payment of the fee prescribed in that behalf in the fourth schedule, see fit to allow, the applicant causes a specification of his invention to be filed in manner by this Part required, and the fee prescribed in the fourth schedule in respect of the filing of the specification to be paid, the applicant shall, subject to the other provisions of this Part, be entitled to the exclusive privilege of making, selling and using the invention in British India, and of authorising others so to do, for a term of fourteen years from the date of the filing of the specification.

(2) But an exclusive privilege in respect of an invention of a new manufacture shall, notwithstanding anything in sub-section (1), cease if the inventor fails to pay, within the time limited in that behalf by the fourth schedule, any fee prescribed in that schedule in respect of the continuance of the privilege.

(3) If, nevertheless, in any case, by accident, mistake or inadvertence, an inventor fails to pay any such fee within the time so limited, he may apply to the Governor-General in Council for an enlargement of the time for making the payment.

(4) Thereupon the Governor-General in Council may enlarge the time accordingly, on payment of the fee prescribed in that behalf in the fourth schedule and subject to the following conditions, namely :—

- (a) the time for making a payment shall not in any case be enlarged for more than three months ; and
- (b) if any suit is instituted in respect of an infringement of the exclusive privilege committed after a failure to make a payment within the time limited for the making thereof and before the enlargement of that time, the Court disposing of the suit may, if it thinks fit, refuse to award or give any damages in respect of the infringement.

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no. 6262

Gen. 277-10-11

(28)

GOVERNMENT OF MYSORE
General Department.

Register No. 8 of 190-11.

Bangalore, the 12th July 1901.

WHEREAS an application, dated the 13th day of April 1911 and received on the 8th day of May 1911, has been submitted under Section 5 of the Mysore Inventions and Designs Regulation, 1894, by William Speirs Simpson and Howard Gwalt, Civil Engineers, both of 165, Victoria Street, London, England.

(hereinafter referred to as "the applicant") for leave to file a specification of an invention for "Improvements in the direct production of iron & steel from the ore"

And whereas the applicant has duly complied with all the requirements of Section 5 of the said Regulation;

The Government of Mysore are pleased, under Section 6 of the said Regulation, to authorize the applicant to file a specification of the said invention in accordance with the provisions of the said Regulation.

ORDERED, that the applicant be, and he is hereby, informed accordingly.

By Order of the Government of Mysore,

(516)

17-11

Secy. In C/Lt. Secretary to the Govt. of Mysore,
Gen. and Rev. Depts..

17/11

Certified that the fees prescribed in the fourth schedule to the Mysore Inventions and Designs Regulation, 1894, in respect of the application for leave to file the said specification and of the filing thereof have been paid by the applicant, and that the specification hereinbefore described has been duly filed in accordance with the provisions of Section 8 of the said Regulation on this the twelfth day of July 1901.

Drift

Secy.

Secretary to the Govt. of Mysore,
Gen. and Rev. Depts

(Section 8 of the Inventions and Designs Regulation, 1894.)

8. (1) If within six months from the date of an order under Section 6, Sub-Section (1), or within such further time, not exceeding three months; as the Government of Mysore, in its discretion, may, on cause shown to its satisfaction and on payment of the fee prescribed in that behalf in the fourth schedule, see fit to allow, the applicant causes a specification of his invention to be filed in manner by this Part required, and the fee prescribed in the fourth schedule in respect of the filing of the specification to be paid, the applicant shall, subject to the other provisions of this Part, be entitled to the exclusive privilege of making, selling and using the invention in the Territories of Mysore, and of authorizing others so to do, for a term of fourteen years from the date of the filing of the specification.

(2) But an exclusive privilege in respect of an invention of a new manufacture shall, notwithstanding anything in Sub-Section (1), cease, if the inventor fails to pay, within the time limited in that behalf by the fourth schedule, any fee prescribed in that schedule in respect of the continuance of the privilege.

(3) If, nevertheless, in any case, by accident, mistake, or inadvertence, an inventor fails to pay any such fee within the time so limited, he may apply to the Government of Mysore for an enlargement of the time for making the payment.

(4) Thereupon the Government of Mysore may enlarge the time accordingly, on payment of the fee prescribed in that behalf in the fourth schedule, and subject to the following conditions, namely:—

- (a) the time for making a payment shall not in any case be enlarged for more than three months; and
- (b) if any suit is instituted in respect of an infringement of the exclusive privilege committed after a failure to make a payment within the time limited for the making thereof and before the enlargement of that time, the Court disposing of the suit may, if it thinks fit, refuse to award or give any damages in respect of the infringement.

Diary No. of letter replied to

No. G 263 Enc 1

General and Revenue Secretariat

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To

H. V. Williams Esq.

of Thomas Munnell Esq.

Cleveland Town, Bangalore

Date of issue 12. 7. 11

Signed by M. R. Narayanaswami

P. R.

With ref^e to the correspondence ending with your letter no 1754-C. 823. 6-1911 in the matter of the application of messrs W. J. Simpson & H. Gwalt for leave to file a specification of their invention for "improvements in the direct production of iron & steel from the ore", I am directed to forward herewith for communication

D. T. over.

SUBJECT.

CRB
11/7/11

to ~~the~~ applicants an order

granting the leave applied for.

I have etc.

~~for~~ 3.9.11.

I certify that

thus.

^x
Reg^r no. 8071910-1/

List of enclosures,

Copied by

Examined by

No.1754-C.

S 325 ✓

S.M. 277-10-13

32

FROM

HENRY VINCENT WILLIAMS,

Patent Agent,

C/O THOMAS MURRELL, Esq.,

Cleveland Town,

B A N G A L O R E.

TO

C. S. BALASUNDARAM IYER, Esq., B. A.,

Offg. Secretary to the Govt. of H.H. the Maharaja of

MYSORE.

General and Revenue Departments,

B A N G A L O R E.

Dated, the 21st July, 1911.

Sir,

With reference to your letter No. G.263 dated
G.M. 277-10-12
the 12th July 1911, communicating the issue of an order
(Reg. No.8 of 1910-11) granting leave to file a specifica-
tion of the invention of Messrs. W. ^{S.} SIMPSON & HOWARD OVIATT
for "Improvements in the direct production of iron and steel
from the ore", I have the honour to forward herewith the
said specification with three copies thereof, and the pre-
scribed fee of Rs 30/-.

W.V. Williams

I have the honour to be,

Sir,

Your most obedient servant,

4 Enclosures.

H.V. Williams

H. V. WILLIAMS & CO

Patent Agents.

TELEGRAPHIC ADDRESS
"LOFZANG CALCUTTA"

A. B. C. CODE. 5TH EDITION.
B. SINGER'S PATENTS CODE.

REGISTERED
2 ENCLOSURES.

No. 1754-0.

14, Hare Street.

CALCUTTA.

23rd June, 1911.

THOS. MURRELL, Esq.,
Cleveland Town,
BANGALORE.

Dear Mr. Murrell,

Herewith I send you my letter of even date addressed to the Secretary to the Government of H. H. the Maharaja of Mysore, together with a certified copy of the Order obtained from the Government of India granting leave to file the Specification relating to Simpson and Oviatt's invention for "IMPROVEMENTS IN THE DIRECT PRODUCTION OF IRON AND STEEL FROM THE ORE".

Please be so good as to hand these papers in at the Secretary's office in the usual course.

Trusting you are keeping fit and with kind regards,

I remain
Yours sincerely,

Forwarded to The Secretary
to Government General & Revenue Dept
with Ref No 30

T Murrell

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MYSORE GOVT. GEN. & REV. SECRETARIAT,

Dated Bangalore... 2. 9. 7. 1901

No. 9.694

20/10/01 9. m. 277-10-14

NOTIFICATION.

(PATENT.)

The following specification of an invention has been filed in accordance with Sections 8, 9, 10 and 11 of Regulation XI of 1894 (The Inventions and Designs Regulations) and is open to inspection at the Mysore Government Secretariat on application to the Secretary to the Government of His Highness the Maharaja of Mysore, General and Revenue Departments, and on payment of a fee of one Rupee.

By

William Speir Simpson and Howard
Griath, Civil Engineers, both of 165, Victoria
street, London.

Improvements in the direct
production of iron steel from their ore.

By Order,

Rm.

Secretary.

To

The Compiler, Mysore Gazette, for publication

hus.

20/10/01 26/7/14

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No. 9.695-Enc. 2.
P.m. 277-10-15

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MYSORE GOVT. GEN. & REV. SECRETARIAT,

Dated Bangalore, 29.7.1911.

From

The Secretary to the Government of H. H. the Maharaja of Mysore,
General and Revenue Departments.

To

Henry Vincent Williams Esq

Esq. Thomas Murray Esq

Cleveland Town, Bangalore

Sir,

With reference to your letter dated 21st July 1911 I am directed to forward copy of a Notification No. 9.694-10-14 dated 29.7.11 issued by this Government in regard to the invention filed by you under Regulation XI of 1894 (The Inventions and Designs Regulations.)

The order granting permission to file specification is herewith returned, with the certificate at foot, duly filled in and signed.

I have the honor to be,

Sir,

Your most obedient servant,

Rn

Secretary.

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Copy 102/3714

money received (if)
31-7-11
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G.R.S. 29A]

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From

Secy. to the Govt. of His Highness
The Maharaja of Mysore,
Genl. and Rev. Dept.

To

The Dy. Com. : Jy Dept

Dated

Bangalore

Despatched

29.7.11

Received

General No. 696

G.M. No. 277-10-16

Enclosure No. 30

It is the honor to forward
herewith for credit Rs 30.
being the fee for filing copies of
the specification of the invention
of Messrs W. S. Simpson & H. G. Smith
for "Improvements in the direct
production of iron steel from the
ore", & to request the favour of
an ackt.

Dr O.

Bm.

Depts Secy

Copied
28/7/11

Ans.

325
26/7

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4/15

G.R.S. 29A]

19

(37)

From

Secy. to the Govt. of His Highness
The Maharaja of Mysore,
Genl. and Rev. Dept.

To

The State Geologist
The Chief Engineer.

Dated

The Supd Govt Museum.

Despatched

29. 7. 11

Received

General No.

9.697-9

G. M. No.

277-10-17.

Enclosure No. 1.

Has the honor to forward
herewith for information &
record a copy of the specifica-
tion of the invention of Messrs
W. S. Simpson & Co. for
"Impts in the direct production
of iron and steel from the
ore." & to request the favour
of an acknowledgment.

Do.

Do.

26/11/11

his.

Copied
29/7/11

38

517
DIARY NO. 5.....

1911-1912
SECTION G. M.
FILE No. 277 of 1910-11
SERIAL No. 18

12/4 1912
Rs. 30/-

Book No. 1013

No. 31
23

Bangalore Treasury dated 31-7-1911.

Received from Secretary to the Govt of Mysore Genl & Rs. 30/-

Purpose Thirty - 08 -

Annas - and Pies - being on account of
for filing copies of the specification of the
Invention of Messrs W. S. Simpson and H. Orville for
Improvement in the direct production of iron and steel
from the ore & etc.

H. Ramaswami
In charge of Treasury.
Bangalore

17.

39

No. 26

OFFICE OF THE ECONOMIC BOTANIST,
SUPERINTENDENT, MYSORE GOVERNMENT MUSEUM,

Bangalore, dated 2nd August 1911.

DIARY No. 534
8

FROM

G. H. KRUMBIEGEL, Esq., F.R.H.S.
Economic Botanist,
Superintendent, Mysore Govt. Museum

1911-1912	
SECTION	S. M.
FILE No.	27 of 1910-11
Bangalore.	
SERIAL No.	19

TO

418/11

C. S. Balasubramanian Esq., B.A.,
Offg. Secretary to the Govt. of M.
The Maharaja of Mysore,
Civil and Revenue Departments,
Bangalore.

Sir,

I have the honor to acknowledge
the receipt of a copy of the Specification of an
invention for "Improvements in the direct pro-
-duction of iron and steel from the Ore by
Messrs. W. S. Simpson & Co. Bristol, London, forwarded
with your letter No. G. 697-9 dated the 29th inst.
C. H. 277-10-17

I have the honor to be,

Sir,

Your most obedt. Servant

G. H. Krumbiegel
Economic Botanist,
Superd., Govt. Museum,
Bangalore.

V
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M

1911

From

G. H. KRUMBIEGEL, Esq., F.R.H.S.,
Economic Botanist,
Supt., Mysore Govt. Museum,
Bangalore.

To C.S. Balasubramanian Esq. M.A.
Offg. Secretary to the Govt.
Of H.H. The Maharaja
of Mysore.
Gen and Rev. Depts.

Dated 2nd August 1911

Despatched — .. —

Received

General No. 26 } 1911-12.
No.

Enclosure No.

Acknowledging the receipt
of a copy of the Specification
of an invention for -
"Improvements in the
direct production of iron
and steel from the ore"
by messrs. W. S. Simpson and
H. Orviatt. London. -

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M.G.D. 13]

24
MYSORE GEOLOGICAL DEPARTMENT.

Dated Bangalore, 2 - Aug. 1911.

DIARY No. 535

No. 238

From

E. W. WETHERELL. ESQ., A.R.C.S., F.R.P.S.L., F.G.S.,

Offg. State Geologist in Mysore.

4/5/11

To

C.S. Balasundaram Iyer, Esquire, B.A.,

Offg. Secretary to the Government of His Highness
the Maharaja of Mysore, Genl. and Rev. Depts.

SIR,

I have the honour to acknowledge the receipt
of a copy of the specification of the invention of Messrs. W.S.
Simpson and H. Oviatt for "Improvements in the direct production
of iron and steel from the ore", forwarded with your letter No.
G.697-9/G.M.277-10-17, dated 29th July 1911.

I have the honour to be,

Sir,

Your most obedient servant,

H. S. Balasundaram

H Offg. State Geologist in Mysore.

ju

DIARY No. ⁶⁰³.....G7

Public Works Department,

Dated 5th August 1911.

1911 - 1912
SECTION E. W.
FILE No. 277 of 1910-11
SERIAL No. 21.

No. 7039

From 218

M. Visvesvaraya, Esquire, M.I.C.E.

Chief Engineer of Mysore, Bangalore.

To

C.S. Balasundram Iyer, Esquire, B.A.,

Offg: Secretary to the Government of Mysore,

General and Revenue Departments, Bangalore.

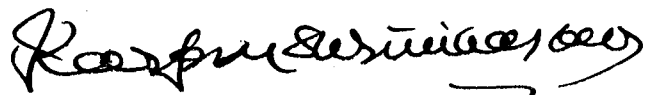
Sir,

I have the honor to acknowledge the receipt of a copy of the specification of the invention of Messrs W.S. Simpson and H. Oviatt for "Improvements in the direct production of iron and steel from the ore," sent with your No. G.697/9/G.M.277-10-17 of 29th ultimo.

I have the honor to be,

Sir,

Your most obedient servant,



Offg: Deputy Chief Engineer,

Mysore P.W. Department.

S.R.



13. From Messrs. H.V. Williams & Thomas Murrell No. 1757
 & 21.7.11.
 File 4 Copies of the Specification with the
 prescribed fee of Rs. 30/-
14. To the Compiler, Mysore Gazette. No. G. 694 & 28.7.11
 Notifies the filing of the Specification.
15. To Henry Vincent Williams Esq, Bangalore. G. 695 & 28.7.11
 Forwards Copy of the above & returns
 sl. 11 duly certified.
16. To the Treasury Office Bangalore sl. No. G. 696 & 28.7.11
 Forwards Rs. 30/- received with sl. 13 & request
 ackd.
17. To the State Geologist, Chief Engineer, Supst. Genl. Museum
 No. G. 697. 9 & 28.7.11
 Forwards a copy of the Specification for record
18. From the Treasury Office Bangalore sl. No. 31-23 & 31.7.11
 Acknowledges receipt of Rs. 30/- forwarded with
 sl. 16.
- | | | | |
|-----|------------------------------|----------------|---|
| 19. | From the Supst. Genl. Museum | No. 26 & 28/11 | } Acknowledge
receipt of
the speci-
fication
forwarded
with sl. 17 |
| 20. | " " State Geologist | " 238 & 28/11 | |
| 21. | " " Chief Engineer | " 7039 & 58/11 | |